

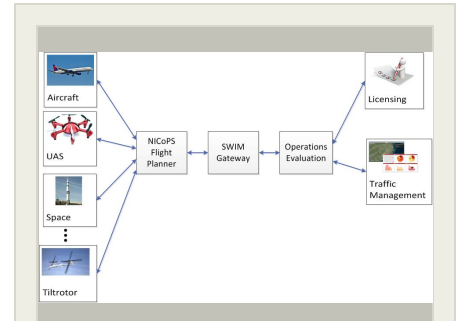
NAS Integrated Collaborative Planning Service, Phase I

Completed Technology Project (2017 - 2017)



Project Introduction

NAS evolution points to different kinds of vehicles (e.g., UAS, on-demand mobility) operated by different kinds of organizations and individuals for different purposes. Currently, vehicles other than aircraft are accommodated in the NAS via manual licensing and planning processes or severe restrictions on acceptable operations. Ultimately, vehicle operators will demand access to airspace, which is a shared public resource. To date, most research has focused on vehicle characteristics and aggregate effects on NAS performance. There has been limited focus on planning needs of the various stakeholders involved in these operations or on envisioning a future NAS that supports collaborative operations planning for a wide variety of vehicles and operations. Planning systems need to evolve to support collaborative planning among all stakeholders' requirements and equitable access to the NAS for different kinds of vehicles used by different stakeholders for different missions that present different safety and planning challenges. Mosaic ATM proposes NICOPS, the NAS Integrated Collaborative Planning System, which works across vehicle types, missions, and planning time scales. Not only does it support a variety of vehicle operators, but it also support traffic management personnel in evaluating different vehicle operations proposals in the context of all other proposed operations, expanding their current capabilities beyond evaluating aircraft operations. It leverages Mosaic's SWIM Gateway and Mosaic Analytics Suite capabilities, among others, to facilitate data exchange and operations analysis. In Phase I, we propose to characterize different stakeholders' planning needs, and design the NICOPS prototype. We will implement the design into an early-stage NICOPS prototype sufficient for initial stakeholder evaluations in Phase II. In Phase II, we propose to iteratively enhance the NICOPS design and prototype, and carry out stakeholder evaluations including field evaluation.



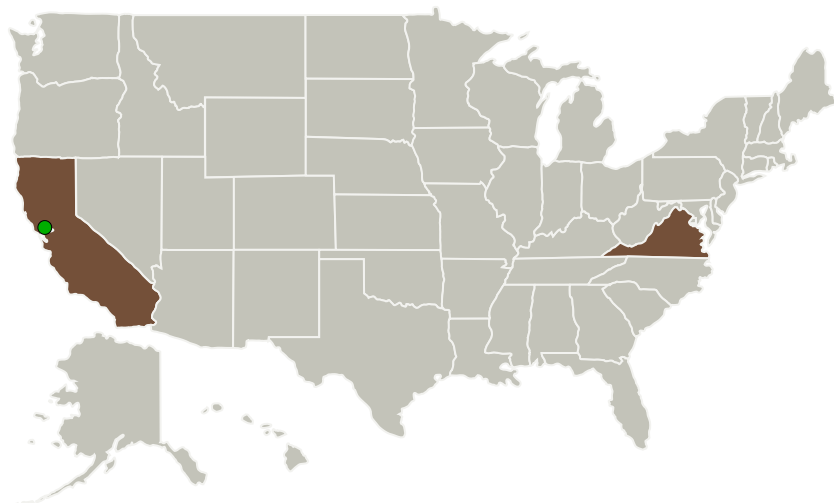
NAS Integrated Collaborative Planning Service, Phase I
Briefing Chart Image

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Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Mosaic ATM, Inc.	Lead Organization	Industry	Leesburg, Virginia
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations

California	Virginia
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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Mosaic ATM, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

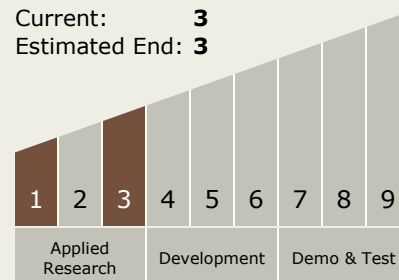
Carlos Torrez

Principal Investigator:

Alicia Fernandes

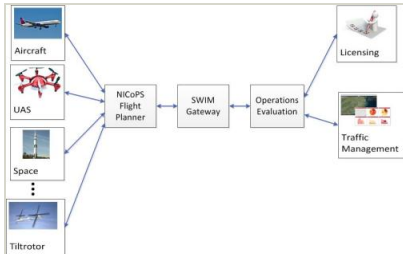
Technology Maturity (TRL)

Start: **1**
Current: **3**
Estimated End: **3**





Images



Briefing Chart Image

NAS Integrated Collaborative Planning Service, Phase I Briefing Chart Image

(<https://techport.nasa.gov/image/136058>)

Technology Areas

Primary:

- TX10 Autonomous Systems
 - └ TX10.2 Reasoning and Acting
 - └ TX10.2.3 Motion Planning

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System